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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 134678-1/SWA(GERD:0086)

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on November 13, 2006

Signature: Seanelle Dice

Typed or printed name: Seanelle Dice

Application Number	Filed
10/814,830	March 31, 2004

First Named Inventor: Charles Edward Baumgartner et al.

Art Unit	Examiner
3768	Jaworski, Francis

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- [ ] applicant/inventor.
- [ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- [X] attorney or agent of record. Registration number 48,226
- [ ] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

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Telephone number

November 13, 2006
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

[X] *Total of 1 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Charles Edward Baumgartner et al.	§	Group Art Unit:	3768
Serial No. 10/814,830	§	Examiner:	Jaworski, Francis J.
Filed: March 31, 2004	§		
For: System and Method for Power Management in an Ultrasound System	§	Atty. Docket:	134678-1 GERD:0086/SWA

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37 C.F.R. 1.8

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November 13, 2006 — Date

Seanelle Dice

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

In accordance with the OG Notice of July 12, 2005, the Applicants respectfully submit this Pre-Appeal Brief Request for Review. This Request is being filed concurrently with a Notice of Appeal. In the Final Office Action mailed on June 23, 2006, and the Advisory Action mailed on October 10, 2006, the Examiner rejected claims 1, 3-21, 23 and 24. The Applicants, however, respectfully submit that these rejections are clearly improper in view of several clear legal and factual deficiencies in the Examiner's rejections.

Claim Rejections under 35 U.S.C. § 103

In the Final Office Action, the Examiner rejected claims 1, 3, 7, 9, 12, 14-15, 17-18, 21 and 23 under 35 U.S.C. § 103(a) as unpatentable over Emery (U.S. Patent No. 6,610,001, hereinafter, "Emery"). The Examiner also rejected claims 4 and 19 under 35 U.S.C. § 103(a) as unpatentable over Emery in view of Chiang et al. (U.S. Patent No. 5,957,846, hereinafter, "Chiang"). The Examiner also rejected claims 5-6, 20, 24 under 35 U.S.C. § 103(a) as

unpatentable over Emery in view of Akisada et al. (U.S. Patent No. 6,183,426, hereinafter, "Akisada"). The Examiner also rejected claims 8, 10-11, 13 and 16 under 35 U.S.C. § 103(a) as unpatentable over Emery in view of Whitney et al. (U.S. Patent No. 5,396,891, hereinafter, "Whitney"). Applicants respectfully traverse these rejections.

Independent Claim 1

Independent claim 1 recites "an ultrasound probe, comprising an ultrasonic transducer; and a physical sensor adapted to sense *engagement* with a subject to be scanned by the ultrasonic transducer, wherein the physical sensor is *independent* from the ultransonic transducer; and a control system coupled to the ultrasound probe and configured to control *power* modes of the ultrasound probe based on feedback from the *physical sensor*."

Emory fails to teach or suggest these features. In sharp contrast, Emory specifically discloses a principle of operation based on different types of reflected ultrasound signals corresponding to either a soft tissue or air, which signal representative of air is used to deactivate the ultrasound probe. In other words, Emory is only used to deactivate an already running ultrasound probe. It does not detect engagement with a subject as recited by claim 1. Moreover, given that Emory uses the ultrasound signal itself as a detection mechanism, it does not utilize a physical sensor to sense engagement with a subject. Again, Emory discloses only deactivation of an operating ultrasound system to prevent overheating. Specifically, Emory discloses:

> When the transducer 56 is not coupled to the tissue 60 but a nonabsorbing medium such as air and the transducer elements 106 are still excited, the majority of the energy that was coupled into the patient is reflected back towards the ultrasound transducer 56 from the lens 102/air interface to be reabsorbed. Again some of the energy is dissipated in the lens 102, matching layers 104 and 108, backing 112 and PZT element 110 causing further heating.
>
> Low energy coupled into air implies that the majority of the energy is absorbed in the transducer. The pulse-echo response also provides information about the reflected pulse from the lens/air interface. ...
>
> Accordingly, a system and method in accordance with the present invention detects when the ultrasound transducer is coupling energy into soft tissue 60 or into the air and deactivates the probe when the probe is coupling energy into air. In so doing, the thermal performance of the transducer improves

> allowing an increase in the duration and level of excitation voltage used from the pulse generator 52. ...
>
> FIG. 3a shows the initial pulse echo response from a lens that is coupled into a fat layer. ... The lens impedance is assumed to be 1.5 MRayls and the fat layer has an impedance of 1.45 MRayls. If the same array element is coupled into air, the pulse-echo response changes significantly as shown in FIG. 3b. The pulse rings more because of continuous reflections off of the lens/air interface 102 (FIG. 2). The pulse amplitude has also dramatically changed. The significant differences in the pulse response allows specific time windows and spectral based algorithms to be used to detect when the transducer is coupling energy into air.

Emory, col. 3, lines 35-47 and 51-57; col. 4 lines 9-10 and 14-22 (emphasis added). Clearly, the foregoing passage describes a principle of operation requiring use of the ultrasound signals, rather than any other signals, to deactive the ultrasound probe when the probe is away from the soft tissue. It would be improper to modify the teaching of Emory to change this principle of operation as suggested by the Examiner. *See* M.P.E.P. § 2143.01(VI).

In addition, Emory discloses additional "control mechanisms may be added to the system or probe to determine whether a probe is in use." Emory, col. 5, lines 59-60. The disclosed "sensors may include: (1) motion detectors (2) optical emitter/detector pairs (3) thermal sensors." Emory, col. 5, line 67-col. 6, line 3 (emphasis added). For example, Emory discloses that the "motion detector would simply detect movement of the probe, which primarily occurs during scanning." Emory, col. 6, lines 4-5 (emphasis added). Clearly, none of these sensors is "adapted to sense engagement with a subject to be scanned by the ultrasonic transducer," as recited by claim 1. Motion is clearly not the same as engagement. These additional sensors are concerned with sensing use of an already operating ultrasound probe. In view of these passages, among others, Emory cannot support a *prima facie* case of obviousness of indepednent claim 1 and its dependent claims. Furthermore, the secondary references do not obviate the deficiencies of Emory.

Independent Claim 9

Independent claim 9 recites "*physically* sensing *engagement* of an ultrasound module with a subject using a *non*-ultrasonic sensor; and switching power modes of the ultrasound

module based on the sensed *engagement*." For substantially the same reasons as discussed above with reference to claim 1, Emory, taken alone or in hypothetical combination with the secondary references, cannot support a *prima facie* case of obviousness of claim 9 and its dependnet claims.

Independent Claim 15

Independent claim 15 recites "an ultrasonic transducer configured to scan a subject; and a *non*-ultrasonic sensing element configured to detect physical *proximity* of the hand holdable ultrasound probe relative to the subject; ... the control system is configured to switch the ultrasound probe between a plurality of power modes based on feedback from the sensing element." For substantially the same reasons as discussed above with reference to claim 1, Emory, taken alone or in hypothetical combination with the secondary references, cannot support a *prima facie* case of obviousness of claim 15 and its dependnet claims. The Applicants also stress that detecting physical *proximity*, as recited above, is clearly different than detecting *motion*.

Independent Claim 18

Independent claim 18 recites "providing an ultrasound unit having an ultrasound transducer to scan a subject and a physical sensor to *non*-ultransonicaly detect *proximity* of a subject relative to the ultrasound unit; and providing a control system to change power levels of the ultrasound unit based on the feedback from the physical sensor." For substantially the same reasons as discussed above with reference to claim 1, Emory, taken alone or in hypothetical combination with the secondary references, cannot support a *prima facie* case of obviousness of claim 18 and its dependnet claims.

Independent Claim 23

Independent claim 23 recites "means for sensing *non*-ultrasonic signals to detect *physically* detecting *proximity* of an ultrasound module relative to a subject to be scanned by ultrasonic transducers of the ultrasound module; and means for switching power modes of the ultrasound probe based on *proximity* feedback from the means for sensing." For substantially the

same reasons as discussed above with reference to claim 1, Emory, taken alone or in hypothetical combination with the secondary references, cannot support a *prima facie* case of obviousness of claim 23 and its dependnet claims.

Moreover, the Examiner has acknowledged that Emery "does not explicitly state that these independent physical sensors detect 'engagement with the subject' as called for in the claim to the degree of inherency necessary for anticipation." Office Action, p. 3. In formulating the rejection under Section 103(a), the Examiner stated that:

> [I]t would have been inherently obvious to use at least the tissue reflectivity sensor to sense active engagement with the subject. In effect this is tantamount to the distance (proximity) sensor which applicants list in specification para [0015] as a category of physical sensor.

Office Action, page 3. This unsupported conclusion is no substitute for the requisite teaching or suggestion in the prior art to modify the device disclosed in Emery. Such a teaching or suggestion is necessary to support a *prima facie* case of obviousness under Section 103. *See In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Accordingly, Applicants respectfully submit that independent claims 1, 9, 15, 18 and 23 and the claims depending therefrom are allowable and respectfully request the Examiner to withdraw the rejections.

Conclusion

The Applicants respectfully submit that all pending claims should be in condition for allowance. However, if the Examiner wishes to resolve any issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

Date: November 13, 2006

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